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(54) Title: **TENASCIN-W COMPOSITIONS AND USES THEREOF**

(57) Abstract: Tenascin-W, an extracellular matrix molecule that is specifically expressed in metastatic tumours is provided. A system comprising a sample expressing tenascin-W is used as an *in vitro* method for screening possible anti-tumour agents or for agents that promote osteogenesis.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/03150

| A. CLASSIFICATION OF SUBJECT MATTER IPC 7 C07K14/47 C12N15/12 C07K16/18 A61K38/17 C12N15/11 C12N5/10 G01N33/50 | | |
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| According to International Patent Classification (IPC) or to both national classification and IPC | | |
| B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 C07K A61K G01N | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched | | |
| Electronic data base consulted during the International search (name of data base and, where practical, search terms used) EMBL, BIOSIS, EPO-Internal, WPI Data, PAJ, EMBASE, SEQUENCE SEARCH | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | DATABASE EMBL 'Online! EBI; 20 October 2001 (2001-10-20) ARAKAWA T ET AL.: "Mus musculus 16 days embryo head cDNA" retrieved from EMBL Database accession no. BB648643 XP002250801 see sequence | 1,4-6, 19,20,22 |
| X | DATABASE EMBL 'Online! EBI; 29 January 2001 (2001-01-29) ZHAO S ET AL.: "RPCI-24-112D17.TV RPCI-24- Mus musculus genomic clone RPCI-24-112D17" retrieved from EMBL Database accession no. AZ748340 XP002250802 see sequence | 1,4-6, 19,20,22 |
| -/-- | | |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input type="checkbox"/> Patent family members are listed in annex. | | |
| * Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the International filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the International filing date but later than the priority date claimed "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family | | |
| Date of the actual completion of the International search 11 August 2003 | | Date of mailing of the International search report 14. 11. 03 |
| Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016 | | Authorized officer Bassias, I |

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International Application No
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| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
|--|--|-----------------------|
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | <p>DATABASE EMBL 'Online! EBI; 21 Apr11 1999 (1999-04-21) RHODES S: "Novel human mRNA from chromosome 1, similar to Tenascin-R" retrieved from EMBL Database accession no. AL049689 XP002250803 see sequence</p> | 7,8,27, 29 |
| T | <p>NEIDHARDT JOHN ET AL: "Tenascin-N: Characterization of a novel member of the tenascin family that mediates neurite repulsion from hippocampal explants." MOLECULAR AND CELLULAR NEUROSCIENCE, vol. 23, no. 2, 20 June 2003 (2003-06-20), pages 193-209, XP002250799 ISSN: 1044-7431</p> | 1-52 |
| P,X | <p>-& DATABASE EMBL 'Online! EBI; 15 March 2003 (2003-03-15) NEIDHARDT ET AL.: "Mus musculus tenascin-N (tnn) mRNA" retrieved from EMBL Database accession no. AF455756 XP002250804 see sequence</p> | 1-52 |
| P,X | <p>DATABASE EMBL 'Online! EBI; 21 December 2002 (2002-12-21) ADACHI J ET AL: "Mus musculus 16 days embryo head cDNA" retrieved from EMBL Database accession no. AK048033 XP002250805 see sequence</p> | 1,4-6, 19,20,22 |
| A | <p>WEBER PHILIPP ET AL: "Zebrafish tenascin-W, a new member of the tenascin family." JOURNAL OF NEUROBIOLOGY, vol. 35, no. 1, April 1998 (1998-04), pages 1-16, XP009015479 ISSN: 0022-3034</p> | |
| A | <p>JONES FREDERICK SCHEETZ ET AL: "The tenascin family of ECM glycoproteins: Structure, function, and regulation during embryonic development and tissue remodeling." DEVELOPMENTAL DYNAMICS, vol. 218, no. 2, June 2000 (2000-06), pages 235-259, XP002250835 ISSN: 1058-8388</p> | |

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/03150

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see FURTHER INFORMATION sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-10 (all completely); 11-52 (all partially, s. PCT/ISA/210)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-10 (all completely); 11-52 (all partially,
relating to tenascin-W from mouse,
SEQ ID NO: 1 and 3)

Nucleic acid having SEQ ID NO: 1, encoded polypeptide (SEQ ID NO: 2), vector and host cell comprising said nucleic acid, antibody recognizing said polypeptide, pharmaceutical compositions comprising said nucleic acid or said polypeptide, the use of said compositions for prophylaxis, treatment or diagnosis of cancer or bone pathologies or any other disease related to tenascin-W expression, methods of inducing stem cell differentiation into bone cells and methods for identifying modulators of tenascin-W function.

2. Claims: 11-52 (all partially,
relating to tenascin-W from human,
SEQ ID NO: 2 and 4)

Antibody recognizing a polypeptide having SEQ ID NO: 4, pharmaceutical compositions comprising a nucleic acid having SEQ ID NO: 3 or encoded polypeptide (SEQ ID NO: 4), the use of said compositions for prophylaxis, treatment or diagnosis of cancer or bone pathologies or any other disease related to tenascin-W expression, methods of inducing stem cell differentiation into bone cells and methods for identifying modulators of tenascin-W function.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claim 1c) relates inter alia to an extremely large number of possible polynucleotides. A definition for a polynucleotide which is at least 85% identical to a polynucleotide encoding a polypeptide containing a given amino acid sequence embraces a very great number of polynucleotides. This definition renders the claim unclear (Article 6 PCT) to such an extent that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search for claim 1c) has been carried out only for the polynucleotide containing the nucleotide sequence as shown in SEQ ID NO: 1. The same applies for claim 19c).

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.